



# Setting Priorities for Exploration Science

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# Science and Exploration

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- How do we identify the best science opportunities within exploration?
- How do we prioritize these science opportunities along with other scientific priorities?
- How is it best to engage the community in answering these questions?

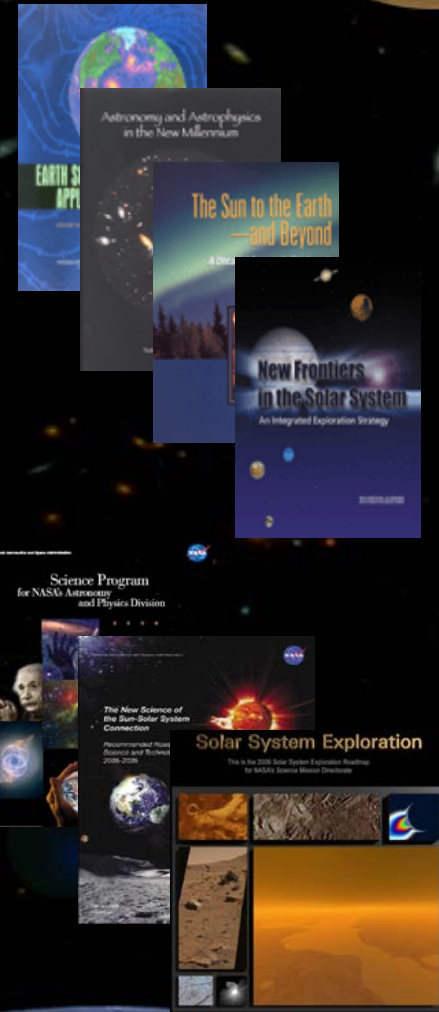


- Audience poll question:
- What is your role in Science and Exploration?
  - (a) Scientist
  - (b) Engineer
  - (c) Business and Management
  - (d) Educator or Student
  - (e) Public Outreach
  - (f) Other



# Setting Science Priorities

- NASA sets science priorities through community input
  - National Academy of Sciences decadal surveys
  - Community-based strategic roadmaps
  - Science Plan for the Science Mission Directorate



# Decadal Survey Scoreboard \*

## Astrophysics (2001)

✓ JWST	✓ GLAST	✓ SOFIA
❖ Con-X	❖ LISA	● SIM
● TPF	✓ SDO	✓ HST SM-4

## Planetary Science (2003)

● Europa	❖ South Pole Moon	● Mars Sample
✓ Pluto/Kuiper Belt	❖ Venus Explorer	✓ MSL
✓ Jupiter Polar Orb	❖ Comet Surface	❖ Mars Network

## Heliophysics (2002)

● Solar Probe	● Geospace/ITSP	● GEC
✓ MMS	✓ Jupiter Polar Orb	X Mag Con
✓ Geospace/RBSP	● Multi Heliospheric	X Sol Wind Sent

## Earth Science (Interim; 2005)

✓ GPM	X Ocean Vect Winds	✓ Glory
X GIFTS	✓ LDCM	

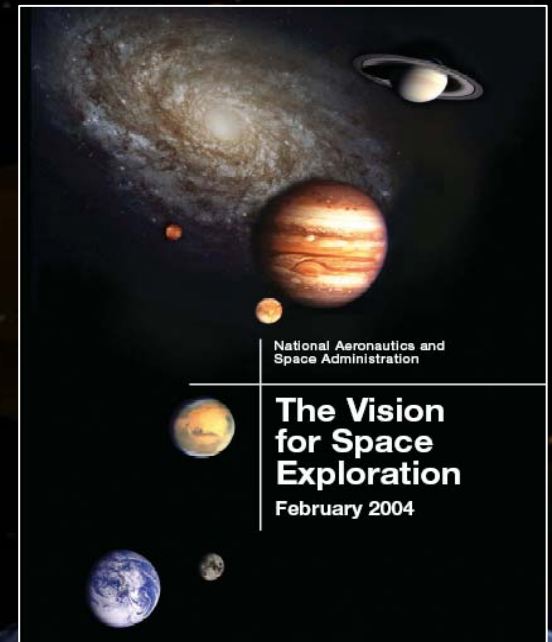
\* Status of prioritized missions in the NASA Science Plan (2006)

✓ in development	❖ future competition or downselect
X not in plan	● future strategic mission

# Exploration Enabled Science



- The Vision for Space Exploration offers new opportunities and new obligations
  - Necessary precursor science becomes programmatically important
  - New opportunities are enabled, must be considered



# Context for Setting Priorities



- NASA's policy is that potential science opportunities enabled by human exploration must compete in the same prioritization process as the rest of the NASA science program, since the funds come from the same pool.
- Anticipating science opportunities that will be enabled by the lunar human exploration missions, NASA will be evaluating the potential for lunar science.



# Working with the Science Community

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- Science community knows how to do this, and we will continue to work together to realize the best science program
  - National Academy of Sciences decadal surveys have set top level science priorities. The exploration program will create new opportunities to address them.



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- Science community knows how to do this, and we will continue to work together to realize the best science program
  - A NASA-sponsored National Research Council study has been initiated on “The Scientific Context for Exploration of the Moon.” This study will recommend long term goals, short term objectives, and preparatory activities.

# NRC Study on Lunar Science Priorities



- The Scientific Context for Exploration of the Moon – Interim Report
- Priorities of Lunar Science Goals
  - Fundamental Solar System Science: Origin of the Earth/Moon system and history of the environment at 1 AU
  - Planetary Processes: Evolution of planetary bodies in the solar system and history of the Sun
  - Other Opportunities: Early Earth history and possibility of using the Moon as a platform

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  - The NASA Advisory Council sponsored Workshop on Science Associated with the Lunar Exploration Architecture will survey the current state of the field and identify potential opportunities for new science investigations.

# NAC Workshop



- NASA Advisory Council sponsored Workshop on Science Associated with the Lunar Exploration Architecture
- The Science Committee of the NAC announces a workshop of its Science Subcommittees to solicit scientific and technical information relevant to planning the science architecture and activities associated with lunar exploration.
- Workshop to be held in Tempe, AZ, on Feb 27 - Mar 2



# Working with the Science Community



- Science community knows how to do this, and we will continue to work together to realize the best science program
  - NASA will continue to openly solicit ideas and subject them to competitive peer review in order to identify and sponsor meritorious and creative investigations
    - 2006: Lunar Sortie Science Opportunities (concept studies)
    - 2007: Lunar Advanced Science and Exploration Research (research and analysis)

# Working Toward the Future

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- NASA is developing the science program as a beneficiary of the human exploration program
- There are always constraints
- Partnership with the science community is essential
- The science community will help NASA make the hard choices to optimize the science program within the constraints